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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,191	02/17/2004	Hiroyuki Yamagishi	7217/71726	9923
530 7590 12/28/2007 LERNER, DAVID, LITTENBERG, KRUMHOLZ & MENTLIK 600 SOUTH AVENUE WEST WESTFIELD, NJ 07090			EXAMINER BAKER, STEPHEN M	
			ART UNIT 2112	PAPER NUMBER
			MAIL DATE 12/28/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/780,191

Applicant(s)

YAMAGISHI, HIROYUKI

Examiner

Stephen M. Baker

Art Unit

2112

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,8,9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8,9 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claim 1, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,996,764 to Yamada (hereafter "Yamada") in view of U.S. Patent No. 4,866,692 to Saito *et al* (hereafter "Saito") or U.S. Patent No. 5,175,545 to Uchiyama *et al* (hereafter "Uchiyama").

Yamada discloses arrangements for reproducing data that has been encoded by a turbo code encoder followed by an RLL code encoder and then carried by a PR channel as a DC-free code . Yamada's combined PR-Channel APP decoder 43 is based on a combined RLL/PR code trellis, where the RLL code is a (1, 7) RLL code. Yamada shows an "acquiring means" in the form of a Reproduction Circuit 41. Yamada's combined PR-Channel APP decoder 43 is thus based on a "trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference," where the "first finite state transition diagram" corresponds to the RLL code trellis, and the "intersymbol interference" corresponds to the trellis of the PR channel. As the PR channel transfer function is itself DC-free, the "1"s and "0"s of Yamada's DC-free code are presumably carried in the form of DC-symmetric values (i.e. "NRZ" values, such as +1, -1. Consequently, the RLL/PR trellis can be described as a "finite state transition diagram" that "includes states defined based on values of a non-return to zero coding of states" which states are inherently capable, of course, of being carried in a "transition table."

Yamada does not mention using a (2,7) RLL code in place of the (1, 7) RLL code. Saito and Uchiyama both disclose that the (2,7) RLL is a well-know alternative to the (1, 7) RLL code.

Official Notice is taken that a (2,7) RLL code is a well-known standard type of RLL code. Yamada's (1, 7) RLL embodiment is exemplary, and Yamada discusses RLL codes in general. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to substitute a (2,7) RLL code in place of Yamada's (1, 7) RLL code. Such a substitution would have been obvious because a (2,7) RLL code is a well-known standard type of RLL code alternative to the (1, 7) RLL code, as evidenced by Saito and Uchiyama, among others.

2. Claims 1, 8, 9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by the published article "Performance Comparison of Selected DC-Free Codes for PR1-Equalized Magnetic Recording Channels" written by Zafer (hereafter "Zafer") in view of Saito or Uchiyama.

Zafer discloses arrangements for reproducing data that has been encoded by a turbo code encoder followed by an RLL (DC-Free) code encoder and carried by a PR1 channel. Zafer's data reproduction requires a PR-equalizer that provides an "acquiring means." Zafer's Viterbi decoder serves as a "means for decoding the acquired encoded data by using a trellis corresponding to a second finite state transition diagram that is a combination of the first finite state transition diagram and intersymbol interference," where the "first finite state transition diagram" corresponds to the RLL (DC-Free) code trellis, and the "intersymbol interference" corresponds to the trellis of the PR1 channel.

As the PR channel transfer function is itself DC-free, the "1"s and "0"s of Zafer's DC-free code are presumably carried in the form of DC-symmetric values (i.e. "NRZ" values, such as +1, -1. Consequently, the RLL/PR trellis can be described as a "finite state transition diagram" that "includes states defined based on values of a non-return to zero coding of states."

Zafer does not mention using a (1, 7) or (2,7) RLL code in place of the DC-Free modulation code. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to substitute a (1, 7) or (2,7) RLL code in place of Zafer's (1, 7) DC-Free modulation code. Such a substitution would have been obvious because a (2,7) RLL code is a well-known standard type of RLL code alternative to the (1, 7) RLL code, as evidenced by Saito and Uchiyama, among others.

Response to Arguments

3. Applicant's arguments filed 01 October 2007 have been fully considered but they are not persuasive. Applicant's arguments with respect to claims 1, 8, 9 and 11 have been considered but are moot in view of the new grounds of rejection.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571)

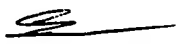
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272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques H. Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Stephen M. Baker
Primary Examiner
Art Unit 2112

smb